



Commonwealth of Massachusetts  
Executive Office of Energy & Environmental Affairs

## Department of Environmental Protection

Northeast Regional Office • 205B Lowell Street, Wilmington MA 01887 • 978-694-3200

DEVAL L. PATRICK  
Governor

RICHARD K. SULLIVAN JR.  
Secretary

KENNETH L. KIMMELL  
Commissioner

Date Stamped: July 29, 2013

Mr. Kevin Helman  
Signature Breads, Inc.  
100 Justin Drive  
Chelsea, MA 02150

**RE: CHELSEA**  
Transmittal No.: X255427  
Application: No.NE-13-011  
Class: SM80-7  
FMF No.: 377979  
**AIR QUALITY PLAN APPROVAL**

Dear Mr. Helman:

The Massachusetts Department of Environmental Protection ("MassDEP"), Bureau of Waste Prevention, has reviewed your Non-major Comprehensive Plan Application ("Application") listed above. This Application concerns the construction and proposed operation of a new baking tunnel oven installed in a section of your existing facility identified as the Mercury Room at your commercial bakery facility located at 100 Justin Drive, Chelsea, Massachusetts ("Facility"). The Proposed oven replaces twenty (20) existing rack ovens at the Facility which were Approved previously by MasDEP. The Application bears the seal and signature of David M. Cotter Massachusetts Registered Professional Engineer number 49068. You currently operate fifty two (52) of the original seventy two (72) rack ovens at the Facility which have been Approved previously by MasDEP.

This Application was submitted in accordance with 310 CMR 7.02 Plan Approval and Emission Limitations as contained in 310 CMR 7.00 "Air Pollution Control," regulations adopted by MassDEP pursuant to the authority granted by Massachusetts General Laws, Chapter 111, Section 142 A-J, Chapter 21C, Section 4 and 6, and Chapter 21E, Section 6. MassDEP's review of your Application has been limited to air pollution control regulation compliance and does not relieve you of the obligation to comply with any other regulatory requirements.

MassDEP has determined that the Application is administratively and technically complete and that the Application is in conformance with the Air Pollution Control regulations and current air pollution control engineering practice, and hereby grants this **Plan Approval** for said Application, as submitted, subject to the conditions listed below.

Please review the entire Plan Approval, as it stipulates the conditions with which the Facility owner/operator ("Permittee") must comply in order for the Facility to be operated in compliance with this Plan Approval.

This information is available in alternate format. Call Michelle Waters-Ekanem, Diversity Director, at 617-292-5751. TDD# 1-866-539-7622 or 1-617-574-6868

MassDEP Website: [www.mass.gov/dep](http://www.mass.gov/dep)

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## **1. DESCRIPTION OF FACILITY AND APPLICATION**

The Facility houses fifty two (52) existing rack type ovens that bake yeast-leavened bread. The rack ovens are manufactured by different manufacturers but are all similar in effective design. The combined heat input capacity of the rack ovens is 20.8 million British thermal units per hour (MMBtu/hr).

The pre-existing 52 rack ovens have been previously Approved by MassDEP via Plan Approval Number MBR-01-IND-019, issued to you on September 25, 2002, and Plan Approval Number MBR-03-IND-007, issued to you on September 22, 2004. Plan Approval NE-13-011 supersedes both of these plan approvals in their entirety.

The primary air emissions from the bakery operations are volatile organic compounds (VOC) which are emitted by the bakery ovens. The primary VOC emitted is ethanol. In yeast-leavened breads, yeast metabolizes sugars in an anaerobic fermentation, producing carbon dioxide (CO<sub>2</sub>) that is largely responsible for the bread rising. The ovens are the predominant emissions sources since ethanol is emitted when the dough is exposed to high temperatures in the oven. The critical factors in VOC production are yeast concentration, total fermentation time, and amount of product produced. VOC emissions are proportional to the amount of bread baked.

The Permittee stores flour in silos located inside the Facility. The silos are equipped with dust collectors that are discharged inside the building. The flour is pneumatically conveyed from the storage silos through a totally enclosed delivery system to the mixing areas.

In addition, the Facility houses several small space and hot water heaters and a boiler that are exempt from the Plan Application requirements of 310 CRM 7.02.

## **2. EMISSION UNIT (EU) IDENTIFICATION**

Each Emission Unit (EU) identified in Table 1 is subject to and regulated by this Plan Approval:

<b>TABLE 1</b>			
<b>Process</b>	<b>Description of equipment</b>	<b>Maximum design capacity in MMBtu/hr</b>	<b>Fuel</b>
EU-1	C.H. Babb Co. Tunnel Oven	6.0 MMBtu/hr	Natural Gas
EU-2 (Ovens 1-52)	52 Rack Ovens	20.8 MMBtu/hr	

**Table 1 Key:**

MMBtu/hr means 1,000,000 British thermal units per hour

EU = Emission Unit

EU-1 will be located in a section of the Facility identified as the Mercury Room and may be identified by the Permittee as MR TO-1

EU-2 will be used as the identifier for the remaining 52 existing rack type ovens at the Facility

This facility stores flour in silos located inside the building. The silos are equipped with dust collectors that are discharged inside the building. The flour is pneumatically conveyed from the storage silos through a totally enclosed delivery system to the mixing areas.

### 3. **APPLICABLE REQUIREMENTS**

#### A. **OPERATIONAL, PRODUCTION and EMISSION LIMITS**

The Permittee is subject to, and shall not exceed the Operational, Production, and Emission Limits as contained in Table 2 below:

<b>TABLE 2</b>			
<b>EU#</b>	<b>Operational / Production Limit</b>	<b>Air Contaminant</b>	<b>Emission Limit</b>
1	460 tons of baked product per month	VOC	1.2 TPM
	5,480 tons of baked product per consecutive twelve month period		13.9 TPY
2	1,145 tons of baked product per month	VOC	1.3 TPM
	13,725 tons of baked product per consecutive twelve month period		16.1 TPY
Facility-Wide (EU 1 & 2 combined)	1,145 tons of baked product per month	VOC	2.5 TPM
	13,725 tons of baked product per consecutive twelve month period		30.0 TPY
Facility-Wide (to include EU1 & 2 and all miscellaneous fuel burning equipment)	CO <sub>2</sub> from the Facility, including the combustion of natural gas and from the process of yeast fermentation of sugar	CO <sub>2</sub>	2100 TPM of CO <sub>2</sub>
			24,800 TPY of CO <sub>2</sub>
	The visible emissions from this Facility shall not exceed 10 percent opacity.	Opacity	Less than or equal to ten (10) percent

**Table 2 Key:**

EU# = Emission Unit Number  
VOC = Volatile Organic Compounds  
CO<sub>2</sub> = Carbon Dioxide  
TPM = tons per month  
TPY = tons per consecutive 12-month period

#### B. **COMPLIANCE DEMONSTRATION**

The Permittee is subject to, and shall comply with, the monitoring, testing, record keeping, and reporting requirements as contained in Tables 3, 4, and 5 below:

TABLE 3	
EU#	Monitoring and Testing Requirements
1	<p>1. Conduct an emissions compliance test at representative conditions within ninety (90) days after commencement of operation of the new tunnel oven. Testing shall be conducted in accordance with requirements and procedures set forth in the applicable USEPA Reference Test Methods at 40 CFR 60 Appendix A, Regulations 310 CMR 7.13 and this Approval. This compliance testing shall be witnessed by MassDEP personnel at a mutually agreeable time and date.</p>
Facility - wide	<p>2. The Permittee shall monitor the following on a daily basis:</p> <ul style="list-style-type: none"> <li>a) The name and type of each product baked;</li> <li>b) The baker's percent of yeast used to the nearest tenth of a percent, for each product baked;</li> <li>c) The fermentation time (total yeast action time) in hours to the nearest tenth of an hour, for each product baked;</li> <li>d) The amount of product baked in tons, for each product baked;</li> <li>e) The corresponding VOC emission factor based on the following formula:</li> </ul> $EF = 0.95Y + 0.195T - 0.51S - 0.86ST + 1.90$ <p>Where: EF = VOC emission factor in pounds of VOC per ton of product baked  Y = initial baker's percent of yeast  T = total yeast action time in hours  S = final (spike) baker's percent of yeast  ST = spiking time in hours</p> $CO_{2\text{bread}} = \text{VOC (unless based on actual emissions test data)} * (44/46)$ <p>Where: <math>CO_{2\text{bread}}</math> = emissions of CO<sub>2</sub> from bread baking in pounds per day  VOC = emissions from bread baking in pounds per day</p>
	<p>3. The Permittee shall monitor the natural gas usage of all combustion equipment at the Facility on a monthly basis. Natural gas consumption billing records are acceptable. The corresponding monthly emission rate of CO<sub>2</sub> emitted from the combustion equipment shall be based on the following formula (unless based on actual emissions testing data):</p> $CO_{2\text{ovens}} = NG_{\text{usage}} \times (60 \text{ tons CO}_2/\text{MMscf})$ <p>Where: <math>CO_{2\text{ovens}}</math> = emissions of CO<sub>2</sub> in tons from combusting natural gas per month including ovens, heaters, and air make-up units.  <math>NG_{\text{usage}}</math> = monthly natural gas used in the combustion equipment at the facility in million standard cubic feet (MMscf)</p>
	<p>4. For each product baked, monitor the actual monthly production in tons of baked product, actual monthly VOC emissions in tons, and actual monthly CO<sub>2</sub> emissions in tons.</p>
	<p>5. The Permittee shall monitor Facility operations such that accurate reports regarding Greenhouse Gas emissions (i.e., CO<sub>2</sub>) can be submitted in accordance with applicable requirements contained in 310 CMR 7.71.</p>
	<p>6. The Permittee shall monitor all operations to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.</p>
	<p>7. Upon MassDEP request, the Permittee shall conduct emission testing in accordance with USEPA Reference Test Methods and Regulation 310 CMR 7.13.</p>

**Table 3 Key:**

EU# = Emission Unit Number  
CO<sub>2</sub> = Carbon dioxide  
VOC = Volatile Organic Compound  
MMBtu/hr means 1,000,000 British thermal units per hour

SOMP = Standard Operating and Maintenance Procedure  
USEPA = United States Environmental Protection Agency

<b>TABLE 4</b>	
<b>EU#</b>	<b>Record Keeping Requirements</b>
Facility-wide	1. Maintain the following records, on a daily basis: <ul style="list-style-type: none"> <li>a. The name and type of each product baked;</li> <li>b. The baker's percent of yeast used to the nearest tenth of a percent, for each product baked;</li> <li>c. The fermentation time (total yeast action time) in hours to the nearest tenth of an hour, for each product baked;</li> <li>d. The amount of product baked in tons, for each product baked;</li> <li>e. The corresponding daily emission rate for each product baked, based on the emission factors and formulas specified in this Approval.</li> </ul>
	2. Record the natural gas usage of all combustion equipment at the Facility on a monthly basis. Natural gas consumption billing records are acceptable. The corresponding monthly emission rate of CO <sub>2</sub> emitted from the combustion equipment shall be based on the specified emission factors and formulas specified in Table 2 above.
	3. For each product baked, maintain a record of the actual monthly production in tons of baked product per month, actual monthly VOC emissions in tons, and actual monthly CO <sub>2</sub> emissions in tons.
	4. For each product baked, maintain a record of the actual consecutive twelve month time period production in tons of baked product, actual consecutive twelve month time period VOC emissions in tons, and actual consecutive twelve month time period CO <sub>2</sub> emissions in tons.
	5. Maintain Facility records such that accurate reports regarding Greenhouse Gas emissions (i.e. CO <sub>2</sub> ) can be submitted in accordance with applicable requirements contained in 310 CMR 7.71. The corresponding monthly emission rate of CO <sub>2</sub> emitted from the combustion equipment shall be based on the emission factors and formulas specified in Table 2 above.
	6. Maintain adequate records on-site to demonstrate compliance with all operational, production, and emission limits contained in Table 2 above. Records shall also include the actual emissions of air contaminant(s) emitted for each calendar month and for each consecutive twelve month period (current month plus prior eleven months). These records shall be compiled no later than the 15 <sup>th</sup> day following each month. An electronic version of the MassDEP approved record keeping form, in Microsoft Excel format, can be downloaded at <a href="http://www.mass.gov/dep/air/approvals/aqforms.htm#report">http://www.mass.gov/dep/air/approvals/aqforms.htm#report</a>
	7. Maintain records of monitoring and testing as required by Table 3.
	8. Maintain a copy of this Plan Approval, underlying Application and the most up-to-date SOMP for the EUs approved herein on-site.
	9. Maintain a record of routine maintenance activities performed on the approved EUs. The records shall include, at a minimum, the type or a description of the maintenance performed and the date and time the work was completed.
	10. Maintain a record of all malfunctions affecting air contaminant emission rates on the approved EUs. At a minimum, the records shall include: date and time the malfunction occurred; description of the malfunction; corrective actions taken; the date and time corrective actions were initiated and completed; and the date and time emission rates returned to compliant operation.
	11. Maintain records to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	12. Maintain records required by this Plan Approval on-site for a minimum of five (5) years.
	13. Make records required by this Plan Approval available to MassDEP and USEPA personnel upon request.

**Table 4 Key:**

EU# = Emission Unit Number  
SOMP = Standard Operating Maintenance Procedures  
USEPA = United States Environmental Protection Agency

<b>TABLE 5</b>	
<b>EU#</b>	<b>Reporting Requirements</b>
Facility-wide	1. The Permittee shall submit semi-annual reports to this Office, attention Bureau of Waste prevention (BWP) Permit Chief documenting the Facility's actual emissions rates, both monthly and running 12-month totals, for each air contaminant specified in Table 2 above by January 30 and July of each year. The electronic version of the MassDEP approved Report Form in Microsoft Excel format can be downloaded at <a href="http://www.mass.gov/dep/air/approvals/aqforms.htm#report">http://www.mass.gov/dep/air/approvals/aqforms.htm#report</a>
	2. By April 15 <sup>th</sup> of each year, the Permittee shall submit a report of direct emissions of greenhouse gases for the previous calendar year to MassDEP. This report shall be certified and submitted in accordance with applicable requirements contained in 310 CMR 7.71(5) through (7).
	3. The Permittee shall submit to MassDEP all information required by this Plan Approval over the signature of a "Responsible Official" as defined in 310 CMR 7.00 and shall include the Certification statement as provided in 310 CMR 7.01(2)(c).
	4. The Permittee shall notify the Northeast Regional Office of MassDEP, BWP Permit Chief by email at Nero.Air@MassMail.State.MA.US or fax [978-694-3499], as soon as possible, but no later than one (1) business day after discovery of an exceedance(s) of Table 2 requirements. A written report shall be submitted to the BWP Permit Chief at MassDEP within three (3) business days thereafter and shall include: identification of exceedance(s), duration of exceedance(s), reason for the exceedance(s), corrective actions taken, and action plan to prevent future exceedance(s).
	5. The Permittee shall report annually to MassDEP, in accordance with 310 CMR 7.12, all information as required by the Source Registration/Emission Statement Form. The Permittee shall note therein any minor changes (under 310 CMR 7.02(2)(e), 7.03, 7.26, etc.), which did not require Plan Approval.
	6. The Permittee shall provide a copy to MassDEP of any record required to be maintained by this Plan Approval within 30- days from MassDEP's request.
	7. The Permittee shall submit to MassDEP for approval a stack emission pretest protocol, at least 30 days prior to any emission testing, for emission testing as defined in Table 3 Monitoring and Testing Requirements.

**Table 5 Key:**

EU# = Emission Unit Number

#### 4. **SPECIAL TERMS AND CONDITIONS**

The Permittee is subject to, and shall comply with, the following special terms and conditions:

A. The Permittee shall comply with the Special Terms and Conditions as contained in Table 6 below:

<b>Table 6</b>	
<b>EU#</b>	<b>Special Terms and Conditions</b>
Facility-Wide	1. NA

**Table 6 Key:**

NA = Not Applicable

B. The Permittee shall install and use an exhaust stack, as required in Table 7, on each of the Emission Units that is consistent with good air pollution control engineering practice and that discharges

so as to not cause or contribute to a condition of air pollution. Each exhaust stack shall be configured to discharge the gases vertically and shall not be equipped with any part or device that restricts the vertical exhaust flow of the emitted gases, including but not limited to rain protection devices known as “shanty caps” and “egg beaters.” The Permittee shall install and utilize exhaust stacks with the following parameters, as contained in Table 7 below, for the Emission Units that are regulated by this Plan Approval:

<b>Table 7</b>				
<b>EU#</b>	<b>Stack Height Above Ground (feet)</b>	<b>Stack Inside Exit Dimensions (feet)</b>	<b>Stack Gas Exit Velocity Range (feet per second)</b>	<b>Stack Gas Exit Temperature Range (°F)</b>
1	35 feet above ground and/or 10 feet above roof top	0.83	62	300 - 600
2	35 feet above ground and/or 10 feet above roof top	0.6 – 1.7	50 - 65	300 - 400

**Table 7 Key:**

EU# = Emission Unit Number

°F = Degree Fahrenheit

## 5. **GENERAL CONDITIONS**

The Permittee is subject to, and shall comply with, the following general conditions:

- A. Pursuant to 310 CMR 7.01, 7.02, 7.09 and 7.10, should any nuisance condition(s), including but not limited to smoke, dust, odor or noise, occur as the result of the operation of the Facility, then the Permittee shall immediately take appropriate steps including shutdown, if necessary, to abate said nuisance condition(s).
- B. If asbestos remediation/removal will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that all removal/remediation of asbestos shall be done in accordance with 310 CMR 7.15 in its entirety and 310 CMR 4.00.
- C. If construction or demolition of an industrial, commercial or institutional building will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that said construction or demolition shall be done in accordance with 310 CMR 7.09(2) and 310 CMR 4.00.
- D. Pursuant to 310 CMR 7.01(2)(b) and 7.02(7)(b), the Permittee shall allow MassDEP and / or USEPA personnel access to the Facility, buildings, and all pertinent records for the purpose of making inspections and surveys, collecting samples, obtaining data, and reviewing records.
- E. This Plan Approval does not negate the responsibility of the Permittee to comply with any other applicable Federal, State, or local regulations now or in the future.
- F. Should there be any differences between the Application and this Plan Approval, the Plan Approval shall govern.
- G. Pursuant to 310 CMR 7.02(3)(k), MassDEP may revoke this Plan Approval if the construction

work is not commenced within two years from the date of issuance of this Plan Approval, or if the construction work is suspended for one year or more.

H. This Plan Approval may be suspended, modified, or revoked by MassDEP if MassDEP determines that any condition or part of this Plan Approval is being violated.

I. This Plan Approval may be modified or amended when in the opinion of MassDEP such is necessary or appropriate to clarify the Plan Approval conditions or after consideration of a written request by the Permittee to amend the Plan Approval conditions.

J. The Permittee shall conduct emission testing, if requested by MassDEP, in accordance with USEPA Reference Test Methods and regulation 310 CMR 7.13. If required, a pretest protocol report shall be submitted to MassDEP at least 30 days prior to emission testing and the final test results report shall be submitted within 45 days after emission testing.

K. Pursuant to 310 CMR 7.01(3) and 7.02(3)(f), the Permittee shall comply with all conditions contained in this Plan Approval. Should there be any differences between provisions contained in the General Conditions and provisions contained elsewhere in the Plan Approval, the latter shall govern.

## **6. MASSACHUSETTS ENVIRONMENTAL POLICY ACT**

MassDEP has determined that the filing of an Environmental Notification Form (ENF) with the Secretary of Energy & Environmental Affairs, for air quality control purposes, was not required prior to this action by MassDEP. Notwithstanding this determination, the Massachusetts Environmental Policy Act (MEPA) and 301 CMR 11.00, Section 11.04, provide certain "Fail- Safe Provisions," which allow the Secretary to require the filing of an ENF and/or an Environmental Impact Report (EIR) at a later time.

## **7. APPEAL PROCESS**

This Plan Approval is an action of MassDEP. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date of issuance of this Plan Approval.

Under 310 CMR 1.01(6)(b), the request must state clearly and concisely the facts, which are the grounds for the request, and the relief sought. Additionally, the request must state why the Plan Approval is not consistent with applicable laws and regulations.

The hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of one hundred dollars (\$100.00) must be mailed to:

Commonwealth of Massachusetts  
Department of Environmental Protection P.O. Box 4062  
Boston, MA 02211

This request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below. The filing fee is not required if the appellant is a city or town (or municipal



agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority.

MassDEP may waive the adjudicatory hearing-filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Should you have any questions concerning this Plan Approval, please contact Thomas Hannah by telephone at 978-694-3287, or in writing at the letterhead address.

Very truly yours

*This final document copy is being provided to you electronically by the  
Department of Environmental Protection. A signed copy of this document  
is on file at the DEP office listed on the letterhead.*

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Thomas A. Hannah  
Environmental Engineer  
Bureau of Waste Prevention

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James Belsky  
Permit Chief

ecc: Chelsea Board of Health,  
Fire Headquarters,  
MassDEP/Boston - Yi Tian  
TRC, David M. Cotter, dcotter@trcsolutions.com  
cc: MassDEP/NERO- Marc Altobelli, Mary Persky, Tom Hannah